

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A pneumatic structural element comprising:
an elongated-a gas-tight inflatable hollow body having a longitudinal axis;
at least one spherical end cap disposed at an end of the gas-tight inflatable hollow body;
at least one compression member disposed on an upper side of the gas-tight inflatable
hollow body and generally parallel to the longitudinal axis of the ~~along a length of the~~ gas-tight
inflatable hollow body, the at least one compression member being subjected to axial
compression responsive to an operational load applied to the pneumatic structural element;
at least two flexible tension members wound around the gas-tight inflatable hollow body
between respective ends of the gas-tight inflatable hollow body, the at least two flexible tension
members being subjected to axial tension and equal stresses responsive to the operational load
attached to respective ends of the at least one compression member in a joint, the at least two
flexible tension members disposed in opposite helical positions around the gas-tight inflatable
hollow body and tightly about the gas-tight inflatable hollow body the at least one compression
member and the at least two flexible tension members being interoperably coupled to each other
at respective ends of the gas-tight inflatable hollow body;
a rigid plate-shaped ~~node element comprising a plate-shaped section~~ disposed at least at
one end of the gas-tight inflatable hollow body and connected to both the at least one
compression member and the at least two flexible tension members, such that the at least one
compression member is disposed between the at least two flexible tension members, the rigid
plate-shaped element having an opening operable to receive the at least one end of the gas-tight
inflatable hollow body and embrace a circumference of the gas-tight inflatable hollow body
accommodate the at least one spherical end cap, first means for fastening the at least two flexible
tension members to the plate-shaped section and second means for fastening the at least one
compression member to the plate-shaped section, the rigid plate-shaped element operable to
support a first compression force transmitted through and directed along a length of the
compression member and a second tensile force transmitted through each of the at least two
flexible tension members, the second tensile force being directed along a length of the at least
two tension members;

wherein the rigid plate-shaped element facilitates connection of the pneumatic structural element with an outside structure

~~wherein, responsive to pressurization of the gas-tight inflatable hollow body, the at least two flexible tension members are equally stressed;~~

~~wherein the joint comprises a joint element operable to support the pneumatic structural element;~~

~~wherein the first and second means for fastening are arranged such that, responsive to application of a load, bending moments within the joint elements are symmetrical relative to the at least one compression member; and~~

~~wherein vectors of the tensile forces exerted by the at least two flexible tension members; and the compressive forces exerted by the at least one compression member and a bearing forces exerted on the plate-shaped section sum to zero, resulting in no bending moments being produced in the at least one compression member.~~

2-4. (Canceled)

5. (Currently Amended) The pneumatic structural element according to claim 1, wherein ~~the second means for fastening~~

the at least one compression member is connected to the rigid plate-shaped element by way of a screw, the screw being received through ~~comprise a first hole in the rigid plate-shaped element and fastened to the at least one compression member;~~ with a screw[[,]] and

the first means for fastening the at least two flexible tension members are received through at least two second ~~comprise holes in the rigid plate-shaped element for introducing the at least two flexible tension members and fastening them and fastened thereto with at least two~~ nuts.

6. (Currently Amended) The pneumatic structural element according to Claim 5, wherein the rigid plate-shaped element section ~~is~~ is a flange.

7. (Currently Amended) The pneumatic structural element according to Claim 1, wherein:

the at least one ~~spherical~~ end cap is received by and enclosed by the gas-tight inflatable hollow body;

the at least one ~~spherical~~ end cap can be introduced flush into ~~an opening of~~ the gas-tight inflatable hollow body; and

~~auxiliary sealing means are provided for sealing~~ the at least one ~~spherical~~ end cap and the gas-tight inflatable hollow body are sealed in a gas-tight manner.

8. (Currently Amended) The pneumatic structural element according to Claim 7, wherein:

the at least one ~~spherical~~ end cap ~~comprises and the opening have~~ a cylindrical part disposed at least in part within the gas-tight inflatable hollow body and a ~~conical or spherical non-cylindrical~~ part disposed at least in part exterior of the gas-tight inflatable hollow body; and

at least one first O-ring is disposed in a first ~~an~~ O-ring groove disposed in the cylindrical part and a second O-ring is disposed in a second ~~an~~ O-ring groove disposed ~~in the cylindrical part of the opening of the rigid plate-shaped element~~.

9. (Currently Amended) The pneumatic structural element of claim 1, comprising: a connecting element operable to facilitate attachment of the rigid plate-shaped element thereto; ~~the connecting element comprising:~~

~~means for fastening the joint element;~~ and

wherein the connecting element is arranged such that bearing forces can be introduced into the rigid plate-shaped element ~~joint elements~~.

10. (Withdrawn) Connecting element according to Patent Claim 9, characterized in that it is constructed from at least one plate (28) with in each case at least one shoulder (33) in which the plate (9, 27) can be positioned, and provided for each plate (28) is in each case one plate (29) which comprises at least one piece, in which a shoulder (33) is likewise made and which can be

firmly screwed to the plate (28), with the result that the plate (9, 27) is accommodated by the plates (28) and (29).

11. (Withdrawn) Connecting element according to Patent Claim 10, characterized in that it is a three-dimensional body made up, at least in part, of plates (28).

12. (Currently Amended) The pneumatic structural element according to Claim 9, wherein the connecting element is a frame structure on which the rigid plate-shaped joint element can be fastened ~~and forms at least part of a side surface of the frame structure.~~

13. (Currently Amended) The pneumatic structural element according to Claim ~~or~~ 12, wherein the connecting element is polygonal in at least one a horizontal projection, and at least one rigid plate-shaped joint element can be fastened on at least one side wall of the connecting element.

14. (Currently Amended) The pneumatic structural element according to Claim 13, wherein the rigid plate-shaped joint elements can be fastened on a plurality of sides of the connecting element[[,]] ~~wherein the pneumatic structural element is arranged around the connecting element.~~

15. (Withdrawn) Connecting element according to Patent Claim 10 or 12, characterized in that it is rectangular and a plurality of joint elements can be fastened thereon, with the result that the pneumatic structural elements run parallel to one another.

16. (Withdrawn) Connecting element according to Patent Claim 10 or 12, characterized in that it is curved and a plurality of joint elements can be fastened thereon, with the result that the pneumatic structural elements run parallel to one another.

17. (Currently Amended) The pneumatic structural element according to Claim 12, wherein the connecting element comprises a tetrahedron shape and the rigid plate-shaped joint element can be fastened to a side of the connecting element.

18. (Currently Amended) The pneumatic structural element according to Claim 12, wherein the connecting element comprises a cube shaped external form and the rigid plate-shaped joint element can be fastened to a side of the connecting element.

19. (Currently Amended) The pneumatic structural element according to Claim 12, wherein the connecting element comprises a truncated pyramid external form and the rigid plate-shaped joint element can be fastened to a side of the connecting element.

20. (Currently Amended) The pneumatic structural element according to Claim 12, wherein the rigid plate-shaped joint element is fastened to the connecting element by way of at least one screw screwed tight.

21. (Currently Amended) The pneumatic structural element according to claim 1, wherein the rigid plate-shaped joint element comprises at least one second joint element operable to allow attachment of at least one additional pneumatic structural element.